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TITLE: Method of and compositions for reducing wear on surfaces subjected to frictional forces
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CA 1337292	A1	19951010	CA 1989-599824	19890516
AU 8936977	A1	19891212	AU 1989-36977	19890517
AU 622912	B2	19920430		
ES 2017252	A6	19910116	ES 1989-1653	19890517
EP 420868	A1	19910410	EP 1989-906387	19890517
EP 420868	B1	19930915		
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HU 56389	A2	19910828	HU 1989-3619	19890517
HU 209491	B	19940628		
JP 03504252	T2	19910919	JP 1989-505615	19890517
AT 94584	E	19931015	AT 1989-906387	19890517
ZA 8903729	A	19910130	ZA 1989-3729	19890518
NO 9004941	A	19901114	NO 1990-4941	19901114
DK 9002740	A	19901116	DK 1990-2740	19901116
PRIORITY APPLN. INFO.:			GB 1988-11696	19880518
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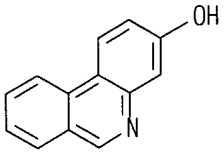
ABSTRACT:
Method and compns. are described for reducing wear on surfaces subjected to frictional forces. The lubricating compns. can be applied in an org. or inorg. carrier. They function by providing a regime in which multimol. layers are adsorbed onto the surface to be protected, thus enabling comparatively thick protective films to be built up on the surfaces subjected to frictional wear. The compds. are single or condensed unsatd. ring systems which comprise >1 6-membered unsatd. heterocyclic ring comprising >1 heterocyclic moiety which acts as a H acceptor and a H donor moiety. A typical heteropolar compd. is 8-hydroxyquinoline.

IT **99585-74-7**, 3-Phenanthridinol
RL: USES (Uses)
(antiwear additive, for lubricating oils and greases)
RN 99585-74-7 CAPLUS
CN 3-Phenanthridinol (6CI, 9CI) (CA INDEX NAME)


OH
N

1957:1804 Document No. 51:1804 Original Reference No. 51:401e-i,402a-e
Cyanine dyes derived from 2-methylindolo[3',2'-3,4]quinoline. Mann, Frederick G.; Prior, A. F. (Univ. Chem. Lab., Cambridge, UK). J. Chem. Soc. 1331-6 (Unavailable) 1956.

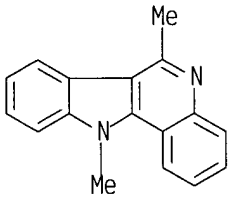
AB cf. preceding abstr. The title compd. (I) and its 1',2-dimethyl homolog (II) readily gave quaternary salts in which the reactive 2-Me group condensed with suitable heterocyclic systems to yield cyanine and azadimethinecyanine salts. The properties of these salts as photographic sensitizers or desensitizers was investigated. (The cyanine derivs. described below were heated at 70-80.degree./0.2 mm. before analysis but certain members retained solvent of crystn.). I (2.1 g.) and 2.1 g. p-MeC6H4SO3Me immersed in an oil bath and stirred with a thermometer, showed at 125.degree. a vigorous reaction with effervescence, the temp. rising to 150.degree.; the melt solidified, the cold pulverized melt extd. with 20 cc. boiling EtOH, and the insol. material collected, washed with hot EtOH, and dried gave 2.0 g. of the quinolinium salt (III), needles, m. 298-300.degree. (decompn.) (from MeOH), its solns. in MeOH and water having a blue fluorescence. II similarly treated gave the quinolinium salt (IV), prisms, m. 243-4.degree. (from EtOH). 2-Methylindolo-[1',2'-3,4] quinazoline treated as above yielded 68% quinazolinium salt, lemon-colored prisms, m. 258-60.degree. (from EtOH), readily sol. in cold water to give a nonfluorescent bright yellow soln. III (0.21 g.), 0.1 g. p-Me2NC6H4CHO (V), 10 cc. Ac2O, and 0.2 cc. Et3N was refluxed 1 hr., and the crude product pptd. in poor yield; the combined material from many varied expts. crystd. from MeOH afforded the cyanine, orange-red needles, m. 307-8.degree. (decompn.). III (0.85 g.) and 0.45 g. V in 40 cc. MeOH and 0.15 cc. piperidine (VI) refluxed 24 hrs., concd. to half-vol., left overnight at 0.degree., and the cryst. deposit recrystd. from MeOH gave presumably dimethine-2-[1-methyl-.psi.-indolo[3',2'-3,4]-quinoline] [p-dimethylaminobenzene]monomethanol solvate (VII). IV (0.87 g.) and 0.45 g. V in 40 cc. EtOH and 0.25 cc. VI refluxed 30 hrs., the soln. concd., the concentrate cooled to 0.degree., and the deposited product recrystd. from EtOH gave the cyanine monoethanol solvate, bright red prisms, m. 266-7.degree. (the monohydrate from another small run had the identical m.p.). III (0.21 g.), 0.25 g. 2,2'-acetanilidovinylbenzothiazole, 12 cc. EtOH, and 0.2 cc. Et3N refluxed 1 hr. gave the cyanine iodide monohydrate, dark green tablets, m. 264.degree. (decompn.) [from MeOH-pyridine (4:1 by vol.)]. III (0.85 g.), 0.5 g. p-Me2NC6H4NO, 30 cc. MeOH, and 0.25 cc. VI boiled 10 hrs., the soln. cooled to 0.degree., the crude product (0.40 g.) collected, and recrystd. from much MeOH yielded the cyanine sulfonate (VIII), crimson crystals, m. 310-11.degree. (decompn.) [from HCONMe2 (IX)]. Repetition of the above expt. with twice the amt. of VI gave 0.21 g. .beta.-azadimethine-2-[1-methyl-.psi.-indolo(3',2'-3,4)quinoline] [p-dimethylaminobenzene] (X), crimson needles, m. 281-1.5.degree. (from IX). X with p-MeC6H4SO3H in IX boiled 10 min. gave VIII, m. 309.degree. (decompn.), mixed m.p. undepressed. 1,1'-Dimethylindolocyanine sulfonate monohydrate, scarlet prisms, m. 275-6.degree. (decompn.) (immersed at 265.degree.), was prepd. in 62% yield from IV like VIII. III (0.21 g.) and 0.15 g. 1-ethyl-3-nitroso-2-phenylindole (XI) in 10 cc. hot Ac2O treated with 0.2 cc. Et3N and boiled 15 min. and the resulting soln. cooled gave 0.2 g. cyanine sulfonate monohydrate, scarlet needles, m. 255-7.degree. (from IX). I (0.65 g.) and 0.55 g. XI added to NaOMe soln.

(from 20 mg. Na and 25 cc. MeOH), the mixt. boiled 5 hrs., cooled, the cryst. ppt. collected, extd. with boiling MeOH (ext. A), and the undissolved residue (78 mg.) crystd. from IX gave .beta.-azadimethine-2-[1-methyl-.psi.-indolo [3',2'-3,4] quinoline] -3''[1''-ethyl-2''-phenylindole] (XII), orange needles, m. 295-7.degree. (decompn.); ext. A yielded 0.15 g. .beta.-azadimethine-2-[indolo[3',2'-3,4]quinoline]-3''-[1''-ethyl-2''-phenylindole] (XIII), yellow crystals, m. 261-4.degree. (from MeOH); the infrared spectrum of XIII had a band at 2.95 .mu. but otherwise the spectra of XII and XIII were closely similar, both having strong bands at 6.17 and 6.18 .mu., resp. IV (0.7 g.) and 0.5 g. XI in 25 cc. EtOH and 0.25 cc. VI treated similarly gave 0.65 g. of the 1,1'-dimethylindolocyanine sulfonate, deep red prisms, m. 254-5.degree. (from EtOH). The absorption and sensitizing properties of certain of the above compds. are recorded.

IT **109697-99-6**, 11H-Indolo[3,2-c]quinoline, 6,11-dimethyl-
(cyanine dyes from)

RN 109697-99-6 CAPLUS

CN 11H-Indolo[3,2-c]quinoline, 6,11-dimethyl- (6CI) (CA INDEX NAME)



IT **124290-49-9**, 11H-Indolo[3,2-c]quinoline, 6-[N-(1-ethyl-2-phenylindol-3-yl)formimidoyl]-
(prepn. of)

RN 124290-49-9 CAPLUS

CN 11H-Indolo[3,2-c]quinoline, 6-[N-(1-ethyl-2-phenylindol-3-yl)formimidoyl]- (6CI) (CA INDEX NAME)